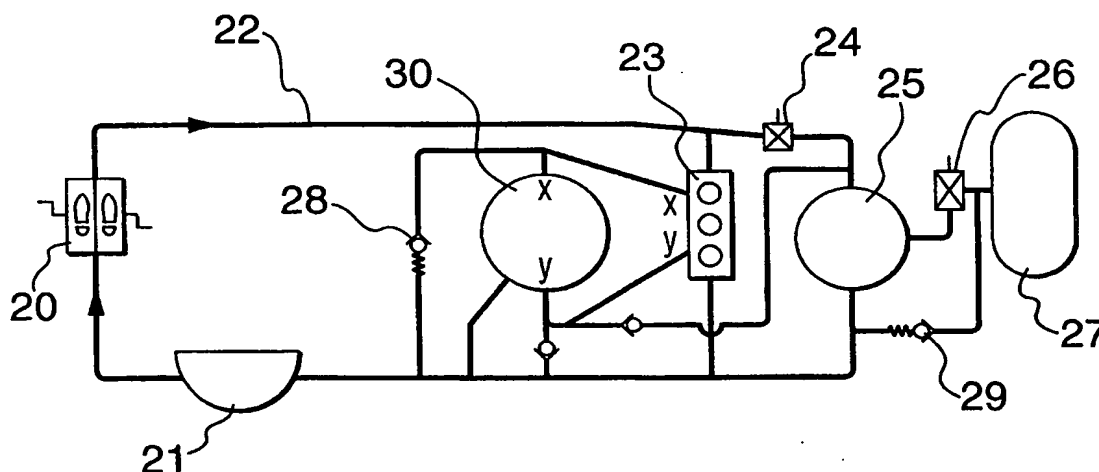




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>B62M 19/00</b>	<b>A1</b>	(11) International Publication Number: <b>WO 99/61306</b> (43) International Publication Date: 2 December 1999 (02.12.99)
<p>(21) International Application Number: PCT/CA99/00490</p> <p>(22) International Filing Date: 27 May 1999 (27.05.99)</p> <p>(30) Priority Data: 9811376.4 27 May 1998 (27.05.98) GB</p> <p>(71) Applicant (for all designated States except US): APAX VEHICLE DEVELOPMENTS INC. [CA/CA]; Suite 200, 2650 Queensview Drive, Ottawa, Ontario K2B 8H6 (CA).</p> <p>(72) Inventor; and (75) Inventor/Applicant (for US only): JACKSON, Eric [CA/CA]; 236 Genest Street #6, Ottawa, Ontario K1L 7Y3 (CA).</p> <p>(74) Agent: PROULX, Eugene, E.; Moffat &amp; Co., 12th floor, 427 Laurier Avenue West, P.O. Box 2088, Station D, Ottawa, Ontario K1P 5W3 (CA).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</p>

(54) Title: HYDRAULIC DRIVE SYSTEM



## (57) Abstract

A hydraulic propulsion system for a human powered wheeled vehicle includes a treadle pump, accumulator, a hydraulic motor, reservoir and valve means connected in a hydraulic circuit. The motor is used for driving a wheel, and is connected by a bidirectional clutch under operator control to provide regenerative braking. Improved energy conservation and acceleration are obtained. A hydraulic pressure ratio transducer, under manual control, may be included in the circuit for controlling acceleration and braking.